

## **AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

### **LISTING OF CLAIMS:**

1-9. (canceled).

10. (currently amended): A radiation detector that detects spatial distribution of a first radiation and a second radiation, the radiation detector comprising:

a plurality of optical transducers, each of which ~~that~~ converts the first radiation to a first light having a first wavelength, and converts the second radiation to a second light having a second wavelength;

a shielding unit that is arranged between adjacent ones of the optical transducers to shield the first radiation, the second radiation, the first light, and the second light;

a plurality of first photoelectric converters, each of which ~~that~~ corresponds to a respective one ~~each~~ of the optical transducers, and outputs a first electrical signal based on intensity of the first light; and

a plurality of second photoelectric converters, each of which ~~that~~ corresponds to a respective one ~~each~~ of the optical transducers, and outputs a second electrical signal based on intensity of the second light..

11. (previously presented): The radiation detector according to claim 10, wherein the first radiation is  $\gamma$ -rays, and the first photoelectric converter includes a photomultiplier.

12. (previously presented): The radiation detector according to claim 10, wherein the second radiation is X-rays, and the second photoelectric converter includes a photodiode.

13. (currently amended): ~~The radiation detector according to claim 10~~ A radiation detector that detects spatial distribution of a first radiation and a second radiation, the radiation

detector comprising:

a plurality of optical transducers that converts the first radiation to a first light having a first wavelength, and converts the second radiation to a second light having a second wavelength;

a shielding unit that is arranged between the optical transducers to shield the first radiation, the second radiation, the first light, and the second light;

a plurality of first photoelectric converters that corresponds to each of the optical transducers, and outputs a first electrical signal based on intensity of the first light; and

a plurality of second photoelectric converters that corresponds to each of the optical transducers, and outputs a second electrical signal based on intensity of the second light,  
wherein

the first photoelectric converters are arranged on a downstream of a direction of the first radiation and the second radiation with respect to the optical transducer, and

the second photoelectric converters are arranged on a side of the direction of the first radiation and the second radiation with respect to the optical transducer.

14. (previously presented): The radiation detector according to claim 13, wherein the optical transducer includes a scintillator array in which scintillators are arranged in one-dimension, and

the second photoelectric converters include a photodiode array in which photodiodes are arranged in one-dimension on a side of the scintillator array in the direction of the first radiation and the second radiation so that each of the photodiodes corresponds to each of the scintillators.

15. (previously presented): The radiation detector according to claim 14, wherein the photodiode array includes a wiring structure extended from the photodiodes to the downstream of the direction of the first radiation and the second radiation.

16. (previously presented): The radiation detector according to claim 14, wherein the photodiode array includes a wiring structure extended from the photodiodes to the downstream of the direction of the first radiation and the second radiation, and further extended along the photodiode array.

17. (previously presented): The radiation detector according to claim 14, wherein a plurality of the scintillator arrays and a plurality of the photodiode arrays are arranged in parallel to form a two-dimensional array.

18. (new): The radiation detector according to claim 10, wherein  
the first photoelectric converters are arranged on the downstream of an incident direction of the first radiation and the second radiation with respect to the optical transducer, and  
the second photoelectric converters are formed of an element that is transparent to the first radiation and the second radiation, and arranged on upstream of the incident direction of the first radiation and the second radiation with respect to the optical transducer.